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GENERAL REVIEWS AND SUMMARIES

EXPERIMENTAL PATHOLOGY OF THE HIGHER MENTAL PROCESSES

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G. G. Fernald (5) publishes the results of a general series of mental tests with an unselected group of reformatory admissions, 100 cases. Most of the paper is devoted to describing the tests and the clinical records of the subjects; the data are fully presented, but only briefly worked out. The tests are denominated: (1) weight discrimination, a series of ten similar weights ranging from 54 to 86 gm. with 4 gm. differences, to be arranged in order; (2) extent of movement, by drawing a line equal to the extent of a movement made five or six times along a given scale; (3) the Holmgren wools for color-blindness; (4) maximum number of taps in 10 seconds, registered by plate, stylus and electric counter; (5) the so-called 3-hole test, one of motor accuracy, similarly registered; (6) a new test, termed achievement capacity, measuring the time the subject will stand on his toes, when told to do so as long as possible (a special recording apparatus is used); (7) a test of speed in the cancellation of a given numeral from a standard blank; (8) a calculation test, counting backwards from 31 by 3's (cf. the familiar "100–7"); (9) the association test of Kent and Rosanoff, evaluated according to the original procedure of these authors; (10) recognition memory, the selection of 10 previously seen picture-post-cards from a group of 20; (11) ethical perception, a series of questions in moral conduct, capable of *yes* or *no* answers; (12) ethical discrimination, a new application of the order of merit method, in which a series of described offences are graded in order of their gravity.

According to the objective quality of performance in these tests, the subjects could be ordered in a range from 1 to 100, and any further subject tested could be assigned to a proper place in this range, in respect to the traits covered by the tests. The object was to effect a clearer separation between responsible and irresponsible groups. As here employed, the tests which seemed to aid in this classification were those of weight discrimination, ethical discrimination, achievement capacity, extent of movement, recognition memory, calculation and cancellation; those which failed to justify themselves were color-vision, tapping, 3-hole, ethical perception and free association. Upon the basis of the tests, three groups were made. The lowest fourth are classified as defective, all of whom could and probably should be segregated. A second quarter are characterized as subnormal, but reacting well to reformatory discipline. The remainder, nearly half, are normal and responsible intellectually. There is much more in the data than the paper brings to view.

Mikulski (7) contributes an unusually clear account of some apprehension and memory experiments. The subjects were 12 normal (educated) and 8 pathological (mostly uneducated) individuals, the latter comprising 3 epileptics, 3 psychopathic personalities, and 2 hysterias, all women. The exposure apparatus used was the pendulum described by Kramer, the exposure time being 15 σ. It was not released by the subject, but by the experimenter after a 1-second "get-ready" signal. The stimuli consisted of cards upon which 3 rows of 3 letters each were typewritten. Only 100 different cards were used, the order being varied, and the letters were arranged to form, so far as possible, nonsense syllables. As noted, two sorts of experiments were performed with this material, in the first of which the subject reported "as soon as clearly perceived" (up to 2 seconds), while in the second set a period of 40 seconds elapsed before the report. Five experiments of 50 stimuli per subject were made of each set on alternate days. The subjects gave the name and position of each letter, and divided their responses into two groups, according as they had been sure of them or not. It was not found practicable to distinguish between certainty of character and certainty of position.

In the apprehension experiments is presented the average number of responses given by each subject, which in turn averages about 3.8 for the normal and 2.7 for the pathological, out of the possible 9. Not all, of course, were correct, the mistakes averaging 15 per cent. in the normal, in the pathological 19 per cent. It is not calculated, but stated that there is no correlation between the total efficiency and

the number of errors. Of the responses in the normal, an average of 90 per cent. was given as certain, of 10 per cent. as uncertain. The pathological subjects change these averages to 94 per cent. and 6 per cent. Of the certain responses, 89 per cent. were correct in the normal subjects, whereas of all responses, only 85 per cent. were so. In the pathological cases, 84 per cent. of certain responses were correct as against 81 per cent. of all responses. The feeling of certainty is thus very slightly more reliable in the normal than in the pathological cases. Among the uncertain responses 44 per cent. were correct in the normal, 33 per cent. in the pathological cases; the former are therefore somewhat more inclined to rate as uncertain, responses that are really correct. A general practice gain in the number of responses is present in both groups of subjects, the relative gain in the pathological subjects being here somewhat greater than in the normal, represented by 34.6 per cent. as against 27.5 per cent. The per cent. of uncertain responses was nearly unchanged by practice in the normal, but decreases by about one half in the pathological group. The uncertain responses become slightly more correct in the normal, no tendency appearing in the pathological group. The later portions of each day's series show some "warming up" gain over the earlier, not so clear in the pathological as in the normal subjects. The per cent. of uncertain responses is here also unchanged in the normal, and again decreases in the pathological.

The *Merkversuche* are similarly treated. The total number of responses averages higher than before, and so does the per cent. of errors, the figures being 4.3 and 17.7 per cent. for the normal, 2.9 and 20.8 per cent. for the pathological group. The per cent. of certain responses is slightly lower in both groups than for the apprehension experiments, the figures being 87.8 per cent. and 93.8 per cent.; the uncertain responses are thus more numerous than above. They are again fewer in the pathological group; *per contra*, these do not have so good a consciousness of the sources of error as the normal. The feeling of certainty loses in value through the pause, through factors that we do not perceive. Among the uncertain responses 46 per cent. were correct in the normal, 38 per cent. in the pathological; in each case correspondingly more than with the apprehension experiments. The practice effect is rather less marked here than in the apprehension experiments; the per cent. of uncertain responses, however, decreases very much with practice in the normal, less markedly in the pathological group. The "warming up" phenomena within the series are but little if at all, in evidence with either group; the ratio of uncer-

tain responses behaves in about the same way as in the apprehension experiments.

Two articles, covering much the same ground, are published by Bischoff (**2, 3**) regarding a special method for the clinical observation of memory. It is based upon a procedure described at the instance of Bischoff by Vieregge[1] some five years since, concerning the number of heard figures that could be correctly reproduced at once, after one minute, and after one minute with distraction. The series used (and quoted) vary in length up to twelve figures, and a standard rate for enunciating them is given. The digits are not, however, given separately, but in notational sequence, *i. e.*, not 5, 2, 6, 9, etc., but five million two hundred sixty-nine thousand, etc. This way is more difficult, but actual comparison seems to show its greater reliability. The subjects are then less likely to use different methods of grouping the stimuli. The more complex question presents itself of whether one should work down from too difficult series or up from too easy ones. The author takes two points, the largest number always repeated correctly, and the smallest number never repeated correctly, and plots the curve between them. Testing with ten normal subjects, the first of these quantities is found to range between 3 and 6, the second between 6 and 11, out of ten trials for series of lengths up to 11. Somewhere in the range between the two quantities is to be found the point to serve as the standard for memory capacity. If now the series are given beginning with the largest, the effect of practice is not so pronounced, and the tests are more reliable, with smaller variations. This procedure is therefore the one recommended. Attention is called to the desirability of making the tests as expeditiously as possible, and of giving warning signals before the beginning of each series. Visual exposure was used in testing the retention of the stimuli, the number retained at intervals of immediacy, 5 sec., 15 sec., 30 sec. and 60 sec., being 40, 49, 54, 48, 38. A convenient method for distraction during the interval was counting backwards from 200 to the beats of a metronome, but an interval of not less than a minute should be used for such experiments. If a one digit stimulus cannot be correctly reproduced at the given interval, the result is stated in terms of the longest time in which it can be. The other paper, though very brief, reproduces some interesting additional data, discusses further the detailed nature of errors, and gives perhaps the better general orientation in the problem.

Upon this procedure Peters (**8**) bases one of the most extensive

[1] *Allg. Zsch. f. Psychiat.*, 1908, **65**, 207–239.

studies of memory in general paralysis that we have. The only important differences of experimental routine were that the subject always gave at once what was remembered, whether or not it was to be repeated after a pause; and that the counting was discarded as being not a distraction but an interference, repetition of foreign words being substituted. A somewhat exacter method of evaluation is also sought for. Of the 68 cases of general paralysis in the institution on September 30, 1911, 13 were too demented to be available, 4 failed to coöperate, and the results discussed are gathered from the remaining 51.

The experiments in immediate memory the author designates by *A*, those with the one-minute pause by *B*, those with the one-minute pause and distraction by *C*. The general average efficiency of reproduction in the *A* experiments is 3.9 figures, about half of the normal according to Vieregge. Ten patients were unable to reproduce even a single figure after the pause of the *B* experiments. For the remainder the corresponding average is a retention of 2.7 figures, for all, 2.2. In the *C* experiments 22 patients retain nothing, the comparative average of the remainder being 1.7 figures, for all, .96 figure. Between these different capacities there is not sufficient correlation to make them estimable one from another; the *B* and *C* experiments have quite poor records, with good ones in the immediate retention. It was especially the distractible and inattentive cases who contributed to this latter result. Sixty-two per cent. of the cases had been under observation for a year or more; of six groups of cases, the first in memory was the fourth in length of hospital stay. There is little relation between the quality of performance and the length of time in the hospital, manifesting the varying rates at which the disease progresses. For measuring the progress, however, the method seems to have special value, particularly the distraction feature.

The localization of the errors is studied. In the five successive memory series given, the *A* experiments show a consistent increase in the errors from first to last, a manifestation of the well-recognized fatigability in this disorder. It is not the case with the *B* experiments, where there is an alteration of few and many errors, perhaps showing periods of recovery. The *C* experiments show an increase of errors in the later series, but by no means so marked as the *A*. The second in order of the experimental series shows some decrease in errors, which the author attributes to a more or less conscious failure to coöperate in the conditions of distraction. There is also calculated the per-

centage of errors affecting the units, tens, etc., places in the single series. The hundreds and units places suffer the most, the tens, which come at the end of the series, rather less.

Among the different types of errors, the omissions are the more frequent in the *A* experiments, least in the *C*. The "free" errors, *i. e.*, substitutions whose origin cannot be determined, are relatively more frequent in the *B* and *C* than in the *A* experiments, as we would expect. Figures added to the original series are by far the most frequent in the *B* experiments, where they seem to have been produced mainly by *Einstellung* to the longer memory series used in the preceding *A* experiments. The metatheses, partial or total, show a progressive decrease in frequency through the three types of experiment, perhaps in relation to the decreasing length of the experimental series. Among the errors of perseveration, *intra*-iteration (within the single series) and *inter*-iteration (between separate series) are distinguished. The former is more common in the *A* experiments, the latter in the other two. The special liability of these cases to errors of this sort, where pauses are involved, is brought into relation with the well-known difficulty of time orientation—accurate ordering of events—in the disease generally. Some interesting stereotypies of perseveration were noted. They are of two sorts; either made up of figures previously given, or of entirely original content (*Konfabulierend*). These latter are not very different from what is observed under similar circumstances in dementia præcox, but it seems as though such cases have more of a feeling of the nonsense character of their answers, a manifestation of their negativism. The present cases give their answers as though really thought correct. Sometimes the stereotypy affects only certain digits. In much demented cases stereotyped phrases may be mingled with the figures.

To some extent the cases could be classified according to their predilection for certain types of errors. The two principal groups are according to the dominance of errors of omission or total metathesis. The groups are the result of different attention types, fluctuating (distributive) or fixating; an analytic or synthetic memory type; or one with strong or weak tendency to perseveration. While, owing to the protean character of the mental manifestations in general paralysis many such types are exemplified, their psychopathological relations can be better studied in other psychoses, having a more unitary mental picture.

Any experimental study must command attention that follows its cases through a period of six or more years. Such is that by

Levy-Suhl (6) on the "experimental influencing of the train of thought." Starting out from the familiar tendency in various clinical groups to react to irrelevantly heard words in an abnormal, distractible, idea-of-reference manner, he formulates his experimental inquiries as: (1) How do different cases of mental disease react to definite word-stimuli, intentionally uttered to be perceived by them, and especially how do those continuously speaking of their own accord react to these brusque interruptions? (2) Are there in the reactions to such stimuli any characteristics that permit the ordering of the cases into psychological groups, and are pathognomonic for one or another mental disease?

The subjects appear to have been mainly disturbed cases, the procedure consisting of noting for a time the spontaneous utterances of the patient, and then with no preliminaries or instructions to speak one by one the given series of stimulus words; the observed reaction of the patient thereto being precisely described.

An obvious relation exists between this method and the free association test, to a destructive criticism of which a following portion of the paper is devoted. Objections are raised on account of the impossible psychological conditions it demands, its remote or even contradictory relation to the reactions of daily life. The entire fulfilment of the conditions could only discover certain formal principles and rules, but necessarily confuses that which is essential for practical and diagnostic application, and, exactly what the experiments are often for, the features individually characteristic of the personality. There is great reason to distrust the experiment in all these directions, and the conventional classification of the associations is full of uncertainties, incapable of quantitative evaluation. There follow further theoretical objections to different features in the interpretation of the association phenomena; *e. g.*, the fallacy of assuming the constant value of the same stimulus word; the variability of the preassociative starting-point, especially when the association-word itself is ambiguous and the like; some interesting experimental demonstrations of *konstellative Vorstellungserweckung* are quoted.

The subsequent treatment of the matter is sounder than the indications of the above paragraph. The stimulus words used were mostly nouns, especially those likely to have strong emotional associations or to arouse vivid imagery; or more indifferent words, and nonsense neologisms. Sometimes special words were used for special cases. Three types of reaction, *resp.* behavior, in the experimental situation are distinguished and described in detail. The

pathological reactions consist essentially in ignoring the unusual character of the interruption, by either questioning its meaning in some more or less natural way, or by bringing it directly into the flighty talk. The more remote the associative processes, the more certainly pathological. The principle of classifying the responses themselves is very properly according to their degree of personal reference, three distinct groups being made, the last including also "dissociative" (scattered) responses. According to these categories the cases studied divide into four types: (1) normal, as above; (2) showing indifference to the interruption, indifference to the content of the stimulus, whether emotional or nonsense, for the most part neutral, superficial associations, of the manic-flighty type; (3) a "selective hyperprosexia" affected differently by different kinds of stimulus words, and showing a much more personal responsiveness; (4) characterized by tendency to incorporate the stimulus word into the stream of thought, but not logically, and in a more or less scattered way, with occasional neologisms.

The cases, of which there are forty-four, are excellently presented, in order according to their assignment to the four groups. It is impossible to summarize the notes, but they repay study very well indeed. In conclusion, the types are reviewed according to the diagnostic entities into which they fall. If one goes over the case histories, and recasts the table on p. 141 more strictly according to Kraepelinian conceptions (the author follows Ziehen) the paranoid conditions characteristic of group 3 divide about equally between manic-depressive and dementia præcox states. Those of group 4 go to dementia præcox, giving a table as follows:

Group	Manic-Depressive	Dementia Præcox	General Paralysis	Hysteria, Secondary Delirium	Total
I			3	1	4
II	10	1			11
IIa		1		4	5
III	9	7			16
IV		7	1		8

The experiment is, then, one of very distinct clinical significance.

A comparative study of affective factors in the association experiment is reported by Birnbaum (1). The method involved the use of a series of association words consisting of twenty generally indifferent words (*hand*, *house*, *hat*), forty words of general emotional import, both pleasant and unpleasant (*death*, *health*, *riches*), and a few others whose emotional import was confined to the special case.

The words were not given in random order, but with the indicated groups kept separate. Times were measured by a stop-watch, those over 30 seconds were counted as failures, and in any case where it appeared called for the subject was asked if anything special had been thought of. The number of subjects in each group was small, but, besides normal individuals, included hysterias, delusional or paranoic states, with manic-depressive and "psychogenic" depressions, these groups being selected because of the particular affective anomalies they show. The method was to compare the reactions to the *a priori* indifferent stimulus words with the emotional ones, and this also in varying mental situations, as after a discussion of symptoms, or the occurrence of some event of special significance to the subject. These refinements of procedure were carried out only with the abnormal cases. The sources of error in the method are discussed, though they scarcely seem rated at their proper value. With the normal subjects the essential result was that the (*a priori*) emotional stimulus words did not have longer reaction times (by the median) than the indifferent ones. Nor is there any essential difference in the reactions to the pleasant and unpleasant stimulus words. In fact there seemed to be no type difference of any sort between the associations of the different groups; normally, therefore, the affective character of the stimulus word does not regularly insure a special affective value in the reaction.

It was then attempted to see if this phenomenon persisted in hysterical individuals, with their more labile and sensitive emotional processes. Here the median is for the emotional stimulus words slightly longer than for the indifferent ones, but the author is disinclined to explain this difference on affective grounds. Not even the peculiar change in the type of reaction, *i. e.*, to sentences and quotations, is interpreted in this way. Specially emotional reactions do seem to occur more frequently to stimulus words selected with regard to the individual case; but it is expressly noted that the subjects might be obviously much under the domination of particular complexes, to which they reacted with great emotivity, without their having any marked influence upon the character of the associations. The experiments under special conditions (*unter dem Einfluss gefühlsbetonter Vorreize*) were only somewhat more characterized by the bringing out of increased emotional reactions. The difference is, however, again very dependent on the words selected for the individual case. Mention is made of the effect on the associations of special incidents, as unsuccessful attempts to escape, or to obtain release by legal process; also the influence of delusional ideas.

The paranoic conditions were confined to cases without dementia; and as before, the results were not uniform. Occasionally the reactions would be made especially matter-of-fact, as it were for dissimulation. The affective influence of the delusional ideas upon the reactions is again essentially confined to the stimulus words of already given emotional import.

The melancholic depressions are naturally characterized by greatly increased reaction times. The indifferent and emotional stimuli are equally affected; the tendency to longer times in the latter is not marked. Possibly the reactions to pleasant stimulus words are less *gehemmt* than to unpleasant ones, but even this would have no clear psychological meaning. The increased reaction time is not therefore directly dependent on the emotional character of the reactions. Inadequacy, monotony, and inferior lability mark the content of the responses. Specially noteworthy is it that the content of the reactions need not be depressive, even in most deep melancholias; the emotional state does not necessarily betray itself therein. When the tendency to depressive responses is present, it affects the emotional stimulus words more than the indifferent, and the unpleasant ones more than the pleasant. Individually selected stimuli are of relatively little additional affective value. This is seen again in the experiments under special circumstances, where there were no particular alterations, either in respect to reaction time, or content of the response. The whole group of phenomena in these depressions seems to be conditioned by thinking disorder rather than emotionally.

The other depressions considered (compulsive and hysterical) are distinguished from the above by a greater egocentricity of the reaction type, though this might be brought out only in experiments under special circumstance. There is greater lability, and not the same narrowing of the field of thought. There is also more tendency to reactions of a pleasant character, indicating the greater superficiality of the depression. These data may have a certain diagnostic value.

Eastman and Rosanoff (4) contribute the results of association experiments with 253 mainly delinquent, also feeble-minded, children, boys greatly preponderating. The ages ranged almost entirely from 11 to 17 years. The test material was the regular Kent-Rosanoff word-list, and the results are treated in the manner described in the second part of Kent and Rosanoff's original paper. In certain ways the present group is found to differ from the 1,000 normal subjects, as well as from the 247 insane cases of the previous study (though to

these comparisons there enter factors of age irrelevant to the abnormal mental conditions). Thus failures of reaction are here especially frequent, and occur mainly to words representing abstract, complex or uncommon concepts; indicating a characteristic arrest of development as distinct from normal mentality, or acquired mental disorder. "Non-specific" reactions are a little more common in the present than the previous groups, averaging 8.4 per cent. per subject, as against slightly over 6 per cent. The tendency towards "common" reactions, markedly weakened in mental disease, is less markedly weakened here, the average per cent. of individual reactions being about double the normal instead of four times the normal as in the insane. Certain sorts of individual reactions are especially prominent. A number of actual test-records are given, which are always instructive; and finally a statement of results with 15 normal children under eight who furnish records resembling the older feeble-minded, and a similar group over ten, who more resemble normal adults. Attention is thus called to the necessity of studying association types developmentally.

Of entirely coördinate importance with these studies of the association experiments is that of Pfenninger (9) but as the reviewer has already noticed it in these columns,[1] it need be mentioned only that it investigates the effects of repeating the same series of stimulus words with small groups of normal and dementia præcox subjects, for a period of eight days. The results contain a number of very interesting features.

Pfersdorff (10) contributes a study, extremely formal in character, of the types of association to be observed in the speech of the mentally diseased. The material consists of thirteen cases, which are very fully presented, but whose clinical pictures are not brought into any intimate relation with the special problem. They seem to have belonged almost entirely to the manic-depressive and dementia præcox groups. Attention is directed to the general motor aspects of speech, and its relation to other features of motility in the cases; the question of accent is specially discussed. The groupings are made according to these criteria; three are distinguished, the disorders of the first being the result of a primary *Rededrang*, of the second dependent rather upon affective disturbances, while in the third they are less of a motor character and more dependent upon the content of speech. The whole treatment bespeaks a grammatical rather than a psychological viewpoint.

[1] PSYCHOLOGICAL BULLETIN, 1912, 9, 435–438.

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MENTAL HEREDITY AND EUGENICS

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The work of the last few years has brought the physician and the psychologist more closely together than ever before. The questions of mental defect and mental disease have needed study from both standpoints, and the aid mutually rendered has been invaluable. But now another feature of the problem has drawn the two sciences still more closely together. Both physician and psychologist recognize that, in view of the new light that recent study, observations and investigations have thrown upon abnormal mental conditions, both must stand together so as to be better able to spread this information and educate the people up to the reforms necessary.

Eugenics—preventive medicine—having as its aim the saving of the race rather than the individual has come to the fore and there seems to be none of its various fields of activity but has interested some one as its advocate. Solomon (27) has stated in a concise masterly form the chief aims of the eugenics movement of today

and thus carefully displaces the false statements made by poorly informed aggressors. Doll (9) and Barker (2) have covered the chief aims of the Mental Hygiene movement. The value of the work of the International Congress on Hygiene and Demography cannot be overestimated. Through exhibits it has started the immense task of educating the public on this subject. Some of the other work of Barker (3) has been to draw attention to the very practical use of these principles of mental hygiene in dealing with nervous school children. Training does not *make* a child's nervous condition but it heightens or lessens his hereditary predisposition.

The views held by Fortune (13) are very similar. School children need medical and mental examinations, but let them be from the standpoint that children are individuals and not merely parts of a mass. Ipswich examined her school population of 12,000 and found 112 mental defectives in that number, besides a large number of cases just needing watching. Hyslop (18) states clearly that he believes it to be the duty of the home rather than of church, state or medicine to teach mental hygiene. If only this view were more widely held! We might then hope to reach through the home some of the school reforms advocated by Fairbanks (11). Nervous conditions are often intensified by educational methods. He advocated school in the morning, only, for children below the sixth year. From there on, the children would undoubtedly be benefited by an afternoon session largely recreational.

The work of Downing (10) goes even farther and states that with proper care and training in childhood many of our insane would not necessarily have reached that condition. The nervous normal child will get along all right but the abnormally nervous child needs study. This might better have been stated as a supposition than as a fact. We cannot tell as yet whether lack of such training is the determining factor for insanity. The fact that the children were "abnormally nervous" to begin with is rather an important indicant of a latent neuroticism which might just as well break out as remain hidden to be handed on to another generation. Wallin (29) strikes the keynote. We must try to keep alive all children once they are born but what we want is "better babies, better born." Prevention of procreation by the unfit seems at present the only measure that will bring us toward the desired ideal.

This has naturally brought the question: "Who are the unfit?" The complete answer cannot come except through many years of hard work. The relative influence of heredity and environment

cannot be settled offhand. Wright (31) discusses quite generally the tendency of present-day biological opinions and then takes up more in detail the possible influence of environment upon the germ plasm and the social significance of such a possibility. The state of mind of the scientific world as to the possibility of such a germ-plasm change is shown nicely by Adami (1). In spite of the popular theory that the child is not affected by the acts of his parent, present scientific facts show that changes may be going on which are too minute to be detected but which may nevertheless exert an influence. Lundborg (23) gives a practical plan for centers in each country to study the conditions of its races and proposes that the material thus collected by any country be made accessible to all others. We must have such data before any perfected plan can be made for the disposition of the undesirable elements.

In view of this fact it is interesting to note that simultaneously there have appeared in various centers in this country and abroad a number of similar investigations upon the heredity of the various types of the unfit. The work of Cotton (6) in this country and of La Griffe (21) in France shows that insanity is hereditary. The work of Cotton is not yet finished but the case histories published are very significant. Field-workers have been trained to make these investigations and such a plan seems satisfactory. As yet we are unable to see the possibility of a full application of the Mendelian law to the inheritance of mental traits. La Griffe's work has been similar, although his investigations regarding each of the main types of insanity have been made and are reported separately. He finds that heredity is usually an important factor in the etiology of mental diseases. The taint usually comes from one side of the family only and may be a neurotic condition intensified by social factors. The human race has been preserved from a larger number of insane by the frequency of celibacy and sterile marriages among them and by the large number of children dying in infancy.

The work of Davenport and Weeks (8) shows that epilepsy, too, is transmissible. Their theory is that epilepsy is due to the absence of a protoplasmic factor determining complete nervous development. Kreiss (20), working on the heredity of tremor, and Frey (14), on ataxia, find they are both inherited and are likely to be found in families containing other forms of degeneracy.

Probably the largest work that has been done on the heredity of feeble-mindedness is Goddard's (15). Hereditary defect has been found in 143 out of 480 descendants of a defective, illegitimate son of

a normal man and an unknown defective girl. From the later marriage of the same man to a normal woman there have been traced 486 descendants, all normal. Chouchoud (5) gives us a brief report of observations made by Col. Ewens on a number of microcephalic defectives living in northwestern India. They are evidently of defective descent and kept alive—parasites on society—by well-meant alms. Unfortunately the report is not accompanied by detailed descriptions of the individuals studied. But no matter whether we can ascribe 75 per cent. or all of such abnormal condition to heredity, the question at the base of all such investigation remains fundamentally the same: What caused the defect in the first place? The theory has been advanced that mental defectives are a strain of the race which has never developed the ability to see the proper relation of cause and effect. They see no need for restraining their desires so that they may not conflict with the rights of others. But does this really settle the matter? Is it not possible that the reason they did not learn to adjust themselves to society is that they were defective from the beginning? Something must have caused their primary difference.

All such investigations have led the scientific world to believe more and more that action must be taken. The burden of supporting these people must not rest any more heavily upon the normal race. In time it should be removed altogether. But what can be done? The institutions available cannot supply room for a quarter of them. Taylor (28), Fernald (12), Mears (25), Barr (4), and Hart (16) have taken the stand that since we cannot segregate them all and since that would be unnecessarily expensive anyway, the only thing to do is to sterilize them. With procreation stopped the matter would be practically under control in a generation. Of course, this plan has its adversaries, too, but a rather capable defense against them is the work of Hurty (17). From studying several hundred cases of criminals that had been asexualized he found the results of the operation had been good. The work of McDonald (24), too, is a plea for the asexualization of all those who carry the "taint," be it of epilepsy, feeble-mindedness or insanity. To this end he urges the education of the public and preventive legislation. Savage (26), on the other hand, tends to emphasize personal rather than racial good. He states that many insane may recover and marry without danger to their mate or their children. Right here in such cases one sees the danger of asexualization unless we have full and certain knowledge of the irremediability of the subject's condition. Such knowledge is coming, however, and until it does come there is plenty to be done with those cases about whose inferior condition there can be no doubt.

Whetham (30), Lankester (22), and Kellicott (19) in their books have outlined very clearly the situation as it confronts all men at present. Man, more heavily endowed with mental powers than any other creature, has made himself master of many of nature's weapons for eliminating the unfit of every type, mental and physical. The responsibility that comes with his ability to fight nature, disease and his environment is the necessity of providing his own means of promoting the welfare of the human race.

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CRIMINOLOGY AND DELINQUENCY

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To *review* the literature in this field in the space available is impossible; instead we have grouped the references to indicate the main trend of interest and fact to be found therein and will present them more or less *en masse*. Everything cited has some direct bearing on the problem of the criminal and the delinquent among whom, it must be remembered, there are many sub-normal, many insane, not a few neuropathic patients, and numerous ones that are border-line cases yet to be understood and classified. Papers on the psychology of sex must also be included.[1]

Of chief significance to the reviewer is the fact that everywhere there has come to be so confident a demand for the application of

[1] Literature reviewed by S. I. Franz under the title of Experimental Psychopathology, PSYCHOL. BULL., 1912, **9**, 145, need not be included here.

experimental psychology to problems of the social offender. Moreover, the idea prevalent a few years ago that anyone at large can give a mental test is being abandoned. Even Goddard (23) has confessed that lack of uniformity in giving the Binet tests (3) is unwise and he is trying to further standardize their methods at Vineland (22).

The idea of a laboratory in connection with the Juvenile Courts is taking a real hold upon the faith of our citizens both here and in Europe. The July *Survey* (52) reports a typical instance of such a laboratory in Seattle, Washington, with which the Judge coöperates heartily. Vaney (53) urges compulsory education laws for the abnormal child and statistics continue to pour in on the proportion of defectives, etc., among the juvenile offenders. Among adult offenders, too, the study of the criminal follows apace.

In the last two years a laboratory of social hygiene has been established at the New York State Reformatory at Bedford Hills for the extensive and intensive study of the criminal woman. The psychological tests and psychiatric examinations of the Belgium government since 1910 have been published (33) and a commission has been appointed in France that is to make plans to start a like laboratory there. Some of the results of these and similar studies are as follows: Robertson (43) finds the two characteristics most to be emphasized after studying two thousand male criminals at Elmira are lack of self-control and absence of fixed purpose; Quirós (42) has been translated and states clearly and briefly the contributions of psychology to criminology; Gross' work (24) has also been made available in English; Auden (2) finds that among 119 cases of congenital mentally deficient criminals 59.6 per cent. were arrested for murder or attempted murder; Menzerath (33) concludes after extensive experiments that unless methods can be refined but little can be learned of the criminals' interests or guilt from word association tests; Wulffen (56) gives a portrayal of the mental characteristics, methods and motives of thieves, incendiaries, etc.; G. G. Fernald's (15) tests of the boys in the Massachusetts Reformatory well deserves Whipple's statement that it is "perhaps, the most valuable psychological study of the criminal that has yet been made," his achievement capacity test being of especial interest; his report, and the monograph of Healy and G. M. Fernald (26) should be read without fail by everyone interested in any form of delinquency or crime; Nitsche and Wilmanns' work (40) is an historical psychological treatment pertinent to prison reform; Mercier (34) classifies crimes,

indicates the influence of insanity on crime and outlines a method of dealing with the criminal insane that seems workable; Kinberg (30) submits one of Sweden's contributions to such a research in a suggestive statistical study wherein may be found such data as that the abnormal criminal bears a frequency of 200 to 1 in murder, 26 to 1 in fraud, etc., that 75 per cent. of recidivists are insane or otherwise abnormal, and that second crimes might easily have been avoided were proper mental and neural examinations only made requisite after the first offence; Saleilles' (44) book on punishment has been translated and Maxwell (32) points out that psychologically persons who may commit the same crime are so unlike as to be too differently affected by the same punishment to make it wise to retain the idea that all punishments should be the same for an identical crime; Crother's (7) article is a short but expert résumé of the way morphine affects one's conduct; he has analyzed carefully the resultant mental states into paralysis of the "ethical brain" with strong egoism, etc.; Schuppius (45) indicates the mental characteristics of vagabonds; Breckinridge (4) presents a careful delineation of the causes of juvenile delinquency which is based upon a ten years' study of 14,000 children; Major (31) finds 80 per cent. of the children who came under the care of the Berlin Child Welfare Society to be in some respect defective; the annual reports or the Seattle Juvenile Court for 1911 and 1912 (17) are especially interesting; of value too are articles by Wallin (54), Näcke (39) and Stadelmann (46); a Bibliography and critical review of the recent literature on the Binet tests may be found in the *Journal of Education*, Vol. III., No. 2; Stelzner (51) records those offences most commonly committed by psychopathic constitutions and states the causes to be uncontrollability of instincts, increased emotionalism, weakness of will and high suggestibility; Peters' report (41) of the papers read at the Berlin Psychological Congress includes one on psychology as applied to jurisprudence and defectives.

A book like Franz's (16) is one of the type of which the next few years ought to produce more in other fields of applied psychology. It is an excellent presentation of those mental tests which are possible of application and useful in the examination of the insane. Most of our psychological tests are too technical and involve too great introspective ability and training to be applicable to our problem of the criminal and delinquent. We all need woefully a method no less scientific and experimental, but less involved introspectively, together with standards for all tests based not on university students but upon

normal individuals with the same training and opportunities as those to be studied. Watson's paper (55) on psychology as the behaviorist views it, may seem a bit radical but it in truth contains the outline of the kind of psychology we shall find most useful.

Huey (29) points out that what we most need are tests that reveal the various dead lines of intelligence for the various occupations from laborer to physician, etc., and that there should be tests that isolate degrees of control of movement, capacity for synthesis, play interests, etc., as well as "self-estimation" and "self-relationships."

A fair and most interesting résumé of tests as applied to the defective and the insane is that of Dana (8) who it seems with Cattell was the first to draw up a scheme of psychological tests for use in psychiatry in America. Results of laboratory tests are noted, of association tests and psychoanalysis, and of general intelligence.

Abnormal psychology with respect to problems of sex in their application to the delinquent and the criminal has at least its share of contributions. Ellis' book (10) on the *Psychology of Sex* is from every angle of first importance. His *Task of Social Hygiene* (11) is valuable too. Moll (36) outlines the prevailing methods of treatment and pleads for psychopedagogical methods to substitute normal images for perverse ones and his book (37) on the pathological sex life of the child is the very best there is. Of interest too are articles by Morichau-Beauchant (38), Ferenczi (14), Glueck (18), and Stekel (49, 50). In the latter paper Freud and Krafft-Ebing and others are upheld in their contention for a symbolic relation between the thing stolen and the thing sexually desired but unattainable.

Of the causes of crime Cornell (6) writes that it is "utterly impossible often to apportion exactly between home environment, inherent mental peculiarities and the uneducated mind." This fact needs to be kept very clearly in mind by the eugenics worker. The leader of such research in America is Charles B. Davenport whose book on eugenics (9) is of real value in the analysis of mental traits and the methods and facts of their inheritance in the criminal and the degenerate. All the Eugenics Record Office publications (13) ought to be read. The writer has found Cotton's (13, 8) especially worth while. *The Kallikak Family* (21) too ought not to be overlooked in the study of heredity.

The more thoughtful and penetrating men who have worked seriously with the problems of crime either among children or adults are all voicing, with slightly different emphasis each from his own angle, the same conclusion regarding the subjective condition of

crime. Brown (5) feels that in bad handling, in neglect or overstimulation of nervous weakness and habits, is to be found the beginning of juvenile crime. Ellwood's (12) excellent review of Lombroso's theory sets forth the view that the cause of crime is biologically in the individual; that, if normal, under no circumstances is crime possible, but that if an atavistic condition or psychic-epilepsy is present, crime is the result of trying circumstances, and the trying circumstances may be only society's demand for normal restraint. Stekel (48) urges that pseudo-epileptic attacks and criminal acts function interchangeably for each other. Cornell (6) finds the degenerate always displays an emotional condition that is too strongly or too constantly manifest. Upon such a basis it is less difficult to explain crimes that are otherwise entirely unreasonable and inexplicable. The Seattle report for 1912 urges against indiscriminate probation on the basis that many children are neither physically nor mentally fitted not to be unduly affected by the ordinary exigencies of life. Another thorough and helpful analysis along this line is that of Glueck (19). He finds most of the psychoses of criminals to be "psychogenetic disorders" which, though they may simulate any of the known psychoses, develop in consequence of some strong emotional experience and do not presuppose the usual insane predispositions and history. They are old offenders whose whole life has been an uninterrupted chain of conflict with the law. Their irritability, heightened subjectivity, fluctuation of mood, inability to form correct judgments concerning unpleasant occurrences about them, their inefficiency, lead them to commit crimes as the simplest way to adjust themselves to their environment. If they are forced into prison where crime is no longer possible, life becomes too complex and difficult of adjustment and they become highly unmanageable and insane. Huey (28), too, feels that beyond the stage of feeble-mindedness intelligence can be best measured in terms of feelings, instincts, emotions, "in control and direction of these" and "in widening of social consciousness and social relationships"; "arrest at these levels leaves the youth in the zone of psychoneuroses and criminology." He refers to Meyer's work on dementia precox (35).

Huey (28) and Healy (27) contend for intensive studies of the individual as the most valuable method of solving the problem of crime. Again, much of the best and most strictly experimental psychological work is an effort to establish correlations between various grades of mental capacity and stability and large numbers of individual reactions to groups of tests. The discussion as to the

existence of a general mental fact essential to the performance of any specific test is interesting and important. Hart and Spearman (25) claim that quite different intellectual performances correlate because of this general factor. Abelson (1) feels that "all tests alike show themselves to be most untrustworthy when used alone," but become "remarkably trustworthy in pools of 10 to 12"; that "the essential nature of intellectual deficiency seems to be a lowering of that class of performances which is characterized by the need of clear consciousness"; "that a large number of tests need to be given not to gage a number of different factors in ability, but to obtain multiple evidence of this one factor, the general level." Simpson's work (47) on correlation of mental abilities represents another attitude on this subject and merits special consideration. It seems likely that the better work of the next few years will have to do chiefly with the possibility and results of such correlations as these.

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APHASIA

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A survey of the last two years' contributions to the aphasia problem finds a most suggestive starting point in Heilbronner's (**26**) critique of the "*Aphasieforschung,*" from the pronouncement of Broca's findings through a period of fifty years (1861–1911). Heilbronner recognizes two basic problems: one purely diagnostic,—do certain symptoms or symptom-complexes indicate certain brain lesions?—the other more comprehensive, can legitimate inferences of brain function be drawn from the parallelism of certain symptoms with certain brain lesions? He considers that the fundamental propositions of Broca and Wernicke have withstood all controversy and all proof; that the use of the Wernicke and Lichtheim schemata make possible full and systematic statements of cases, and that the neglect of this method has done much to retard progress; and finally that future progress depends upon localization investigations, and statement of facts from the viewpoint of Meynert and Wernicke. In a later article (**27**) reporting a case of alexia, in which many symptoms occurred which were unreconcilable with the concept of pure alexia, Heilbronner recognizes the difficulty in drawing a sharp demarkation between the conduction and the cortical aphasias, the difficulty in separating pure sensorial functioning from that of recognition and recollection, in short the difficulty in establishing clinically, or in localizing, pure types.

In the first article the opinion is expressed that Pierre Marie has failed to prove his proposition that "the third left frontal convolution plays no special rôle in the function of language," as well as his localization of anarthria in the lenticular zone. His further statement that Marie believes the essence of aphasia to be a dementia called forth a reply from Marie (**35**), in which he explains that this false interpretation of his theory arose from an error of Déjerine. Marie's (**36**) original statement is: "With aphasics there is, in general, a marked diminution of the intellectual capacity." Déjerine's ver-

sion was: "With aphasics there is a marked diminution of the general intellectual capacity." Marie's concept is that the defect, which is the kernel of the aphasia problem, is one of intellectual capacity for spoken language, which must be considered not as a sensorial but as an intellectual deficit. In this essay he takes occasion to state that in a large number of cases studied since his first publication he has found not one that fails to substantiate his published conclusions.

Those who wish a clear statement of the classical types of aphasia correlated with brain localizations will find such admirably given in Hammond's article (**24**). Saunby (**46**), in a paper presenting two new cases, traces briefly the historical development of aphasia theories from the first crude findings of Gall and Spurzheim to the revolutionizing theories of Pierre Marie. The opening chapter of Brissot's (**12**) book is also historical, tracing the theories of aphasia and the general psychophysiology of language as well.

Dagnan-Bouveret's (**17**) article is a critical discussion of theories, pointing out the difficulties, psychological, clinical, and anatomical, which beset the localization theories. It states Bergson's psychological objections to the idea that each word calls up an image which when blended with the sensory impression results in understanding of the word. Bergson points out that this cannot be so with connectives, and that a word's individuality is not constant, but is determined entirely by its setting. He also calls attention to the fact that words are lost in regular order: proper nouns, common nouns, verbs; and are recovered in reverse order. This seems incompatible with the theory of localization of images, but not with that of general enfeeblement of function. The author, then, in a discussion of the problem of apraxia denies that motor images are essential to the execution of a volitional movement, and therefore to the production of spoken language. The sole necessity is the consciousness of the end to be attained, which consciousness is largely a state of tension, of desire. The clinical and anatomical objections are quoted in extenso from Marie.

Bing's (**7**) discussion particularly emphasizes the latest controversies, presenting the arguments for and against Marie's doctrine, and treating in detail the dynamic theories of von Monakow, Bernheim and Goldstein. It also contains an analysis of apraxia in its latest conception, with directions for clinical examination.

Goldstein (**22**), in his exposition of central aphasia, emphasizes, like Marie, the intellectual deficit. He holds that for the under-

standing of speech two mental responses to stimulation are necessary, one sensory, consisting of the perception of the word as such, and one ideational, consisting of the idea which the word represents. The latter response is dependent upon the integrity of a central language field. He believes that intact speech-areas guarantee only accurate repetition; that other forms of speech require in addition a normally functioning central association area. Word-blindness and inability to speak he believes yield to one explanation. Defects of reading and writing he considers secondary in character, depending upon a primary lack of word understanding. The author holds out no hope of fine brain localizations, considering that most psychic happenings have no isolated brain localization, but are localized in and through one another, that all mental experiences are more or less identical, different kinds of combination being formed from the same elements.

Pelz (43) also recognizes the value of psychological interpretation, and concludes that the symptom-complex of transcortical aphasia may occur without localized lesion, purely as a functional defect of higher centers.

Stertz (48) presents two cases of subcortical sensory aphasia, explaining them on a dynamic theory. He notes that the symptoms vary so greatly during the course of a case that the subcortical complex may become cortical, or the reverse may occur.

In direct opposition to these dynamic theories stand such studies as that of Mills and Martin (39). These authors have demonstrated their confidence in the classical localization theories in the most practical way. They hold that certain groups of symptoms pointing to cortical lesions indicate operative treatment, and prove their thesis by reporting the successful treatment of a case by the removal of a tumor, which was localized from the symptoms. They also describe a type which combines transient aphasic symptoms with indications of specific disease. Such cases improve under treatment with salvarsan and mercury.

Bernheim (5) reports a case of motor aphasia and agraphia, with Jacksonian epilepsy, of syphilitic origin, which recovered rapidly under treatment with mercury. He explains the case by his own dynamic theory, as he does a second case (6) in which autopsy revealed complete destruction of speech-areas in a woman who had regained her speech after its temporary loss. The woman had demented progressively and at the same time gradually regained her speech.

Many case reports both of clinical and anatomical findings have

appeared, some supporting and some opposing the classical doctrines. Berger (2): a case of total aphasia with typical lesions, and a case (4) of total deafness for words and sounds, resulting from lesions of both first temporal gyri; Saunby (46): two cases of pure subcortical motor aphasia. Karpas and Casamajor (32): a case of isolated alexia, with right homonomous hemianopsia, supporting Déjerine's and Liepmann's theories. Blosen (9): a case in which involvement of both temporal lobes had caused no word-deafness, and a discussion of word-deafness (8) in connection with a reported case. He notes that the intensity of the trouble depends partly upon the complexity of the language, that there is no difference in the perception of different parts of speech, that the deafness pertains to no definite word or letter, and that it is less evident when familiar words are used. Archambault (1): two cases, in one complete destruction of Broca's area and right hemiplegia with no aphasia; in the other a lesion of the lenticular zone accompanied by marked and permanent motor aphasia. Berger (3): a case of agraphia without cortical lesion. Bouchaud (10): a case of dysarthria with word-blindness, hemianopsia, agraphia and amnesic aphasia—no word deafness. Autopsy showed softening of the left tempero-occipital lobe and both lenticular nuclei. Campbell (13): a case of aphasia in which agraphia was the principal symptom, revealed on autopsy a tumor separating the first and second left frontal gyri. Pfeifer (44): clinical and anatomical findings in a reported case support classical localization theories.

Three articles discuss the relationship between right- and left-handedness and the localization of speech centers. Mendel (38) reports a case of left hemiplegia and subcortical motor aphasia, caused by a lesion of the right hemisphere in a *right-handed* person. He cites similar cases in the literature and also cases of right hemiplegia with aphasia in left-handed persons. He treats such cases as exceptions to the general rule of localization. The question of the effect on the sensory centers of training of the non-dexterous hand is raised, and Oppenheim's case is quoted—that in which a right-handed woman who lost the use of the right hand by injury, trained the left hand and, years later, developed a left hemiplegia accompanied by aphasia. This question is also discussed by Sträussler (49) who concludes that such training has little effect. Lewandowsky (34) describes a case of crossed aphasia and apraxia; reversed functioning of both hemispheres.

Another group of articles present aphasia as occurring in connec-

tion with some other infirmity,—arteriosclerosis, nephritis, hysteria and insanity. Sir Wm. Osler (41) reports two cases of transient motor aphasia in cases of high blood pressure. He states the possibility of such occurrence in persons not suffering from arterial disease. Hesnard (25) describes a case of transient motor aphasia due to intense and restrained emotional excitement. Brissot (12), on the basis of 52 cases, discusses the relation of aphasia to dementia, concluding that the dementia results from causes distinct from those producing the aphasia.

Congenital aphasia has been noticed in four articles. Tait (51) reports a case of the motor form in a child of five, Hinschelwood (28) adds two more to the list of hereditary congenital cases, McCall (40) describes one case of word-blindness and one of word-deafness, and Town (52) gives an historic summary of the literature on the subject and presents two cases of mixed type.

The problem of apraxia is so closely related to aphasia that we report a group of articles dealing with its various phases. Coriat contributes three papers. One deals with its psychopathology (15), one with its relation to psychiatry (16), and one with clinical methods for its diagnosis (14). In the first article he describes in detail the anomalies of movement which may be called apraxic according to the latest acceptation of the term. He points out that such symptoms occurring in aphasics are probably often due to apraxia rather than to an intellectual deficit, as claimed by Marie. In the majority of cases he finds the corpus callosum or the left parietal lobe involved, and these are the eupraxic centers of his second article (16); in this he enumerates the psychoses in which apraxia appears. Dearborn (18) considers that to omit the cerebellum from the discussion of apraxia is to "dehamletize" the text, that without this center voluntary movement has no principle of action. The so-called eupraxic centers in the frontal lobe are controlled from the cerebellum, and it is only by interrupting connecting pathways that lesions of the corpus callosum become involved in apraxia. The notion of a definite eupraxic center he thinks untenable on account of the great individuality of voluntary movements. We are reminded of this statement by the analysis of Rose's (45) case in which reëducation brought out the fact that apraxia affects certain discrete movements, not muscle groups. Schapiro (47) critically reviews the whole question, and in his case considers defects in writing letters apraxic because they can be produced by the left hand and not by the right, and also because the more rapid the writing the better the performance.

Vix (53) also considers the relation of apraxia and agraphia in a given case, concluding that they are unrelated, while Franke (20), in another, considers such relation as possible.

Case reports are contributed by d'Hollander (30) and by Kroll (33). Kroll concludes from autopsy findings in three cases of motor apraxia that left apraxia was caused by isolating the right supramarginal gyrus from the left hemisphere, and double apraxia by isolating the left supramarginal gyrus from the left motor centers.

Jones (31) discusses the relation of apraxia to dementia præcox and finds that it occurs in that and many other psychoses. Mabille (37) presents a remarkably fine clinical picture of a case which he interprets as dementia præcox with apraxia. As the volitional movements in this case were, after great delay, performed adequately, we doubt whether they can be subsumed under the idea of apraxia.

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SPECIAL REVIEWS

The Psychology of Insanity. BERNARD HART. New York: G. P. Putnam's Sons, 1912. Pp. ix + 176.

In reading this little book one must keep in mind the qualifications noted by the author in the Introduction that it "lays no claim to be a comprehensive treatise upon the psychology of insanity" and that "no attempt has been made to cover the whole field." The title is, in fact, too inclusive and does not properly designate the contents of the book, which is mostly a treatment of Freudian contributions to the understanding of certain mental abnormalities. The Freudian standpoint is usually well described, but the effort at simplicity leads at times to more exact statements than the facts warrant. Thus, we are told, "a similar mechanism (of repressed complexes, etc.) probably accounts for the condition known as *spes phthisica*, the astonishing cheerfulness and optimism which frequently characterizes the last stages of pulmonary consumption." There is no more reason for the belief that the mechanism cited produces by itself the condition of cheerfulness in tuberculosis than the cheerfulness and expansiveness of the general paralytic. Although by far the larger part of the book deals with mental abnormalities from the standpoint of Freud, Hart concludes that the sexual hypothesis has not been satisfactorily established and that mental abnormalities "may involve factors connected with any of the fundamental instinctive forces of the mind provided these factors are of sufficient emotional intensity."

S. I. F.

Modern Treatment of Nervous and Mental Diseases. Edited by W. A. WHITE and S. E. JELLIFFE. Philadelphia: Lea and Febiger, 1913. Vol. I. Pp. 867.

Although the title of this work indicates that it deals exclusively with the treatment of mental diseases, the contents are more general and, with few exceptions, the individual articles include discussions of the symptoms and course of the diseases as well as their treatment. Some of the articles, in fact, deal with more general matters, such as that of White on eugenics and mental heredity in nervous and mental diseases, that of Colvin on education, and that of Havelock Ellis on sexual problems, their nervous and mental relations, and that of

Healy on delinquency and crime in relation to mental defect or disorder. There is also a chapter on immigration and the mixture of races in relation to the mental health of the nation by Salmon. The book is most timely in its dealing with the problems of eugenics, heredity, delinquency and education, and psychologists will find in it more than the title indicates.

The chapter on education, which is mostly psychological, leaves one with the feeling of incompleteness since the relation of the general subject to the insane is scarcely dealt with. In view of the increasing realization of the importance of occupation, amusement, and various forms of exercise in the treatment of many insane the passing remarks in the various chapters do not appear to cover the subject adequately, and the omission of the matter from the chapter on education is particularly noticeable. The chapters on psychiatry in its military relations and immigration are of general interest, not particularly therapeutic, and deal largely with statistical matters. The individual chapters deal with their subjects in different manners, some, *e. g.*, that of Southard on the symptomatic psychoses, giving little general information of the mental conditions, others, *e. g.*, those of Jones on the neuroses and psychoneuroses and of Meyer on paranoic and paranoid states dealing with symptomatology as well as with treatment. In every chapter, however, psychological matters are discussed either directly in relation to symptoms or in their bearings upon treatment and the mental factor is uppermost throughout the whole book.

S. I. F.

Freud's Theories of the Neuroses. E. HITSCHMANN. (Trans. by C. R. Payne.) New York: Jour. of Nerv. and Ment. Dis. Pub. Co., 1913. Pp. x + 154.

This monograph, with its introduction, ten chapters giving a review of Freud's publications, and a bibliography of the writings of Freud, and, incompletely, of the Freudian school, is an excellent general presentation of the Freudian psychological and therapeutic standpoints. It should be in the hands of all who are interested in normal or pathological psychology or in mental therapeutics. Since the book is of the nature of a résumé of Freud's teachings, an adequate brief summary cannot be given here, but it may be stated that the five chapters on sexual instinct, the unconscious, the dream, the psychoanalytic method of investigation and treatment, and the application of psychoanalysis, are of more general psychological interest.

The author attempts to answer some of the critics who have objected to the sexual explanation, but falls short of explaining why this aspect rather than that of life-preservation or the instincts of fear or pugnaciousness should be the basis of so many daily, normal mental processes. Analysis equally often brings to light fundamental conditions like those of pain or hunger, and, logically, these may equally well be considered the basis of later mental conflicts. It is admitted that a public psychoanalysis is impossible and that "the method" has had no "systematic and complete exposition." The acquirement of the technique of "the method" by "personal contact with Freud" is suggested as the one possible means of becoming proficient. A scientist is led to wonder if the lack of a systematic exposition of the method is due to an inability to describe it and thus make it available for general use. He may also wonder if the apparent necessity of seeking the *fons et origo* to learn "the method" may not involve the acquirement of a *feeling* or *attitude* rather than *knowledge*. If the method of psychoanalysis has the innumerable advantages and the superior merit which is claimed for it, and if "individual details torn from their context lose the greatest power to convince," the complete reproduction of one or more analyses, even with the enormous space necessary for this, is a scientific demand which should be met. The pretence that this would "bring the physician into conflict with his duty of discretion" is an evasion of the question, since there is not only the generally accepted method of presenting case reports with changes of names, dates, etc., but also the possibility of selection of suitable cases. If opposition be due to the failure to publish cases in full, Freud and his school must consider themselves to blame for it, for science demands the whole truth. If, on the other hand, Freudianism be a cult, we must be content with the revelations and writings which are given us. If it be science, we are well within our right to demand minutely detailed observations, full description of methods and logical thinking. It is chiefly because of the failure in these regards that, scientifically, the subject has not been better received. The reviewer does not believe that in this matter there are many "who will not allow themselves to be convinced," and does believe that the taking of sexual confidences out of their setting and assuming them to be the sole or the only important content is a sufficiently questionable method to bring doubt to the minds of all but true believers. Many who are professionally interested have been awaiting a clear and full exposition of the methods and results of psychoanalysis, which the present work does not give. Many have

remained open-minded, but when they have expressed doubts and made critical inquiries they have been accused of blind antagonism or of failure to read and understand. Abuse of this nature is not proof. Freud and his followers should realize that the burden of proof rests upon them. Hitschmann apparently admits this and, furthermore, concedes that the Freudian publications regarding method or observations have not met the scientific requirement of completeness.

Notwithstanding the above general criticism of the Freudian lack of completeness the present work is a step in advance in that it brings together the general conclusions of the school, and it may be recommended to those who endeavor to understand a matter which has hitherto been misunderstood or misapprehended because of lack of information.

S. I. F.

Grundriss der Heilpädagogik. T. HELLER. 2te Aufl. Leipzig: W. Engelmann, 1912. Pp. xi + 676.

The second edition of this valuable work indicates the advances that have been made in the subject since the publication of the first edition nine years ago. Two thirds of the book deals with the description and treatment of the feeble-minded and the remaining third with the description and methods of treatment of other nervous conditions in childhood. The chapters cover juvenile insanity and other mental disorders as well as feeble-mindedness, and special attention is paid to hysteria and nervousness. Only an extensive review would do justice to the numerous excellencies of the book, but it may be said that the treatment of the topics is sane and conservative and so plain that any one who is interested, even though not a specialist, may understand.

S. I. F.

Le langage et la verbomanie, essai de psychologie morbide. OSSIP-LOURIÉ. Paris: Felix Alcan, 1912. Pp. 275.

This book is an entertaining, but not strictly scientific, presentation of an analysis of a special type of character, rather than the description of a form of mental disease. Verbomania, like logorrhœa, is not a distinct clinical entity but rather a symptom, the principal character of which is a pathological and irresistible tendency to talk and to discourse, often without knowledge and without attempts at accuracy.

The author believes the symptom may be found in both sexes,

but its greater frequency among women is expressed by him in the words of Erasmus: "Quand l'est de la langue qu'il faut jouer, même sept hommes ne valent pas une femme." The differences in characters of the French, English, Germans, Italians and Russians in this respect are discussed. A chapter is devoted to the prophylaxis and treatment of the condition, the main suggestion for the former being training in accurate thinking and expression, and for the latter special training by periods of silence and thought. Some of the case histories cited in the book are suggestive as problems for psychoanalysis, but the Freudian character of the symptom is not dealt with.

S. I. F.

General Paresis. E. KRAEPELIN. (Trans. by J. W. Moore.) New York: Jour. of Nerv. and Ment. Dis. Pub. Co., 1913. Pp. 200.

This translation of part of Kraepelin's large work on psychiatry will be found useful by psychologists and others who are interested in the insane. It contains discussions of symptomatology, diagnosis and treatment, and gives a clear exposition of the question of paresis at the present time. The translation is well done, and it makes available to those who have not the time or inclination to acquire a German psychiatric vocabulary one of the most important chapters in Kraepelin's system, and enables them to become acquainted with the most recent and important facts regarding the varied mental abnormalities which are found in this disease.

S. I. F.

The Kallikak Family: A Study in the Heredity of Feeble-mindedness. H. H. GODDARD. New York: The Macmillan Co., 1912. Pp. xv + 121.

This study should be read by all who are interested in eugenics and in the general subject of inheritance. It gives the record of five generations of descendants of one man, in two lines, respectively through a normal woman and feeble-minded woman. The comparative records are of greater interest and value than other previously reported records of individual families because the comparison of descendants in two lines is possible. The arrangement of the charts is not entirely satisfactory for study, some being distributed over two, three or even four pages, but for popular interest the combination of a normal and an abnormal chart on one page is very effective. It is to be hoped that this study may lead to the publication in similarly accessible form of studies of other families which are now scattered

in the magazines dealing with eugenics, psychiatry and feeble-mindedness.

S. I. F.

Traitement des Neurasthéniques. P. HARTENBERG. Paris: F. Alcan, 1912. Pp. 346.

This work deals principally with the treatment of neurasthenia, and is a companion volume to the author's psychology of neurasthenia. Neurasthenia is defined as an exaggeration of fatiguability of the nervous system, which may be accompanied by a number of pronounced mental symptoms, such as phobias and obsessions, but does not include the latter. The treatment in most cases is simple and in many cure can be effected within two weeks. In this respect the author is more hopeful than most writers on the subject. The book contains little of interest to the psychologist.

S. I. F.

Handbook of Mental Examination Methods. SHEPHERD IVORY FRANZ. New York: Jour. of Nerv. and Ment. Dis. Pub. Co., 1912. Pp. ix + 163.

This handbook forms Number 10 of the well-known Nervous and Mental Disease Mongraph Series. From the preface one learns that an endeavor has been made to select methods which not only seem to test certain mental processes, but which at the same time are easy to perform and are sufficiently accurate for certain kinds of research as well as for routine clinical purposes. The subject matter of each chapter is presented in a uniform manner which makes reference to a particular phase quite easy, even without the index which is provided. In each chapter there is a general discussion of the subject dealt with, which gives the reader a sense of orientation and a degree of preparation for the understanding of the tests which immediately follow. The volume will prove a valuable tool not only to the class especially interested, the neurologist and psychiatrist, but also to the general practitioner who attempts to keep pace with the strides of progress in this field of medicine.

F. M. BARNES, JR.

BOOKS RECEIVED DURING MAY

SCHUMANN, F. *Bericht über den V. Kongress für experimentelle Psychologie in Berlin vom 16. bis 20. April 1912.* Leipzig: Barth, 1912. Pp. xxv + 324. Mk. 11.

KIPIANI, V. *Ambidextrie. Étude expérimentale et critique.* (Trav. de la Faculté Int. de Pédol., No. 1.) Paris: Alcan, 1912. Pp. 103.

EASTMAN, M. *Enjoyment of Poetry.* New York: Scribner's, 1913. Pp. xi + 224.

FRAZER, J. G. *The Belief in Immortality and the Worship of the Dead.* Vol. I. London: Macmillan, 1913. Pp. xxi + 495. $3.50.

HOBEN, A. *The Minister and the Boy.* Chicago: The University of Chicago Press, 1913. Pp. vii + 171. $1.10.

MCCOMAS, H. C. *The Psychology of Religious Sects.* New York: Fleming H. Revell Co., 1912. Pp. 235. $1.25.

RUSSELL, J. E. *A First Course in Philosophy.* New York: Holt, 1913. Pp. v + 302.

ROYCE, J. *The Problem of Christianity.* 2 vols. New York: Macmillan, 1913. Pp. xlvi + 425. $3.50.

PECK, R. B. *The Perceptions of Robert Bowman Peck.* London: E. Mathews, 1913. Pp. 48.

BÜHLER, K. *Die Gestaltwahrnehmungen. Experimentelle Untersuchungen zur psychologischen und ästhetischen Analyse der Raum- und Zeitanschauung.* Stuttgart: Spemann, 1913. Pp. viii + 297. Mk. 7.50.

HUNTER, W. S. *The Delayed Reaction in Animals and Children.* (No. 6 of Behavior Monographs.) New York: Henry Holt & Co., 1913. Pp. 86.

BECHTEREW, W. *La psychologie objective.* Paris: Alcan, 1913. Pp. iii + 478.

MAJOR, D. R. *The Elements of Psychology.* Columbus, O.: R. G. Adams and Co., 1913. Pp. xiii + 413.

GRAY, C. T. *Variations in the Grades of High School Pupils.* Baltimore: Warwick & York, 1913. Pp. 120. $1.25.

RÉVÉSZ, G. *Zur Grundlegung der Tonpsychologie.* Leipzig: Veit & Comp., 1913. Pp. viii + 148. M. 4.

NOTES AND NEWS

PROFESSOR JOHN B. WATSON and MR. K. S. LASHLEY, of the Johns Hopkins University, sailed on the 19th of April for the Dry Tortugas to remain until the latter part of June. They will complete the work on the homing of the noddy and sooty terns, upon which Professor Watson has been engaged for several years under the auspices of the Carnegie Institution.

PROFESSOR RAYMOND DODGE has been granted leave of absence for the coming year, without university salary, in order to assume the position of experimental psychologist for the Nutrition Laboratory of the Carnegie Institution. Professor Dodge will be located in Boston.

W. C. RUEDIGER, professor of educational psychology, and acting dean of the Teachers College at the George Washington University since the death of Dean Hough last September, has been appointed dean.

C. E. FERREE read a paper before the American Philosophical Society of Philadelphia on Friday, April 4, entitled: The Problem of Lighting in Its Relation to the Eye. Relative to the progress that is being made by the committee that was appointed by the American Medical Association for the investigation of this problem, the following extract is taken from the report made on March 8, by the Secretary of the Committee, acting under the instruction of the Chairman. "The most promising method thus far suggested for a test as to possible eye injury is the one brought forward by Prof. Ferree, of Bryn Mawr College. The work for the present year, therefore, consists of further experiment by him with this method at Bryn Mawr College in conjunction with the ophthalmologists resident in Philadelphia, and members of the committee."

THE present number of the BULLETIN, dealing with Psychopathology, has been prepared under the editorial care of Professor Shepherd Ivory Franz.

THE following items are taken from the press:

THE French Academy of Moral and Political Science has elected M. Pierre Janet, professor of experimental psychology at the Collège de France, to the chair left vacant by the death of M. Fouillée.

MRS. CHRISTINE LADD FRANKLIN, of New York City, has recently given three lectures on "Color Vision" at Columbia, Harvard and Clark Universities.